# INEEL PUBLIC MEETING ON PROPOSED CLEANUP PLAN FOR IDAHO CHEMICAL PROCESSING PLANT (INTEC)

**IDAHO FALLS, IDAHO**

Monday, November 16, 1998

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MR. SIMPSON: Welcome to tonight's meeting. I'm Erik Simpson. I am the community relations plan coordinator for the INEEL Environmental Restoration Program. And I'm going to facilitate tonight's meeting.

We're here tonight to discuss the results of the Waste Area Group 3 Remedial Investigation/Feasibility Study and then also to discuss the proposed plan. For those who don't already know, Waste Area Group 3 is the environmental restoration program designation for the Idaho Nuclear Technology and Engineering Center, or what some people formerly called the Chem Plant.

This is the fifth facility-wide environmental investigation that we've completed at the INEEL, and we have four more to go under our Federal Facility Agreement and Consent Order. And since this is really, probably, the most complex site that DOE, EPA, and the state have investigated, the agencies have agreed to extend the comment period an additional 30 days, so now the comment period will end on December 22nd.



The last time we held public clean-up meetings in Idaho Falls was in February of this year when we were discussing the Test Area North Remedial Investigation/Feasibility Study and proposed plan. At the request of our stakeholders and the citizen's advisory board, we revised that document, and it is being rereleaseed for public comment this month. For those who would like a copy of that document, see me at the break, and I'll get your address and get you a copy.

At the back of the room, we have several supporting documents. We have the Waste Area Group 3 proposed plan. We have fact sheets. We have the meeting presentation, copies of the slides. We have the Federal Facility and Consent Order, which outlines all these clean-up projects, and I have some community relations plans as well.

At this time I would like to review the agenda with you. First, we're going to have the presentation and then we will have a question-and-answer session. And since we have kind of a lengthy presentation, I would like to hold off on any detailed questions until the actual question-and-answer question. So, really, if you could just limit your questions to points of

clarification, maybe, an acronym that you're not familiar with. But if a question does come up that the presenter can't immediately answer, I will write it on a tablet up here or you can write it on a tablet in the back of the room. I also have some cards at the back table where you can also jot down your question, and we'll get to those during the question-and answer session.

Following that session, we will have the formal comment session where your comments are entered into the record. And we have a court reporter here tonight who is recording all portions of this meeting. Also you can submit your comments in writing, and we have several forms here tonight, postage-paid forms that will allow you to write your comment and fold the comment and place it in the mail, and we'll get the comment.

Also there are comment forms at the back of the proposed plan, postage-paid comment forms. And also I have a tape recorder here tonight, so if somebody doesn't want to make a comment in front of a group of people, they can log a comment on the tape, and I'll have it transcribed.

I should also mention at this time that we have a brief survey on the back of the agenda.



Please take a few minutes after the meeting and jot down your impressions. This will really help us focus on improvements that we may need to make for future meetings.

At this time I would like to introduce the presenters -- or the principals who are here tonight. With the Environmental Protection Agency, Region 10 Seattle, we have Wayne Pierre. And Wayne will give an overview of the project, and he'll talk about the Tank Farm, which is one of the primary contributors to contamination at the INTEC.

We have Talley Jenkins, who is the project manager for the Department of Energy. And Talley will discussion soils under buildings and structures, other surface soils, the SFE-20 tank system and buried gas cylinders.

Next to Talley we have Scott Reno. Scott is with the State of Idaho, Department of Health and Welfare, Division of Environmental Quality. He was also instrumental in drafting this proposed plan, and he was involved in the investigation of INTEC. And he will discuss the perched water and the Snake River Plain Aquifer.

At this time I would like to turn it over to Wayne Pierre.



MR. PIERRE: Thanks, Erik.

As Erik mentioned, my name is Wayne Pierre. I'm with the Environmental Protection Agency. Scott Reno and Talley Jenkins, we're actually going in the order of I'll give an overview presentation, followed by Talley. We'll talk about the soils, and then Scott will do cleanup and discuss the other facilities.

Erik mentioned or discussed why we're here. Again, we are here because we do need public input. The alternatives that we have identified, the alternatives that we believe are preferred, may not be the same as you think.

We have a lot of assumptions in how we made our decisions, and we would like to have your input on this. One of the things I should mention is everyone in the back, for those who can't see, can read along with this presentation. Also in the back I would ask that folks get a copy of the proposed plan. There are still copies in the back.

One of the things, when people look at cleaning up the Department of Energy facilities, questions often come to mind, why does it cost so



much to clean up this type of hazard. It didn't cost that much to create the hazard, but oftentimes it costs hundreds to thousands of times more to fix it.

Radioactivity -- and I know that there is a lot of debate on what levels are safe, but the levels that we look at for dealing with radioactive contamination is orders of magnitude lower than the numbers that we look at for dealing with chemical contamination. We're trying to address those small quantities of radionuclides and the extra safety that is involved.

Why do the agencies want the public's input? Again, one of the nine criteria that we will talk about later is community input. We need to know how you feel, the folks who will be living close to the cleanup, whether or not it makes sense to you, whether it makes sense to build a disposal facility on site, whether it makes sense to spend this kind of money, whether it makes sense to have contingency actions, all those things that we will be talking about today, we would like to have your input on that.

I guess, last but not least, why is the proposed plan so complicated. It's over 50 pages

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long. This is a very complicated facility. This is the facility where the Department of Energy dissolves fuel rods. It's the facility where the Department of Energy stores high-level waste. This is the facility where, at least since 1952, there have been numerous spills and a lot of contaminated soil. And to try to explain that, we've explained that in these documents -- tried to condense that into this proposed plan.

So I hope you bear with us as you read it. You can get access to these documents at the technical library. Is this available right now on the Internet? You can also get it looking at INEEL dot World Wide Web.

Many of you here already know the background of INEEL. Again, operations started in '52. The Idaho National Engineering and Environmental Laboratory is on the national priority list. I'm going to skip over some in the interest of time. If somebody would like me to go back to it, please let me know or read along.

As placing the INEL -- I have a tendency to keep calling it INEL, I hope you will bear with me. I haven't gotten used to the double E on INEEL -- identified that we felt and the

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Environmental Protection Agency was taking turns that there were hazards at this facility that did require urban investigation. And as Erik mentioned, in the process of remedial investigation feasibility studies that we have concluded to date in all of them, some action has been warranted at each of the Waste Area Groups. The Idaho Chemical Processing Plant is one of 10 waste area groups at INEL.

Again, referring to the proposed plan, if you take a look at Table 11, you can get a quite overview of what the groups are that we're talking about. Table 11 is in the back of the proposed plan. What the groups are that we're talking about, the seven groups, the types of monies that we're talking about and what the preferred alternative is.

I should mention that in the 95 sites that we looked at, the majority of those sites did not require further action. Forty sites did. And the bases for that has to do what is considered acceptable risk. In this case, termed unacceptable risk. Let me talk a little bit about the question of risk assessment. And every agency, even in my agency, each department has different ways of

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determining acceptable risk. Therefore the Superfund program, which is defined by the National Contigency Plan, the objectives are to provide an analysis of the baseline risk to provide a basis for determining levels of chemicals, to include the radionuclides that can be made on site, to provide a basis for comparing the potential health impacts for each of the alternatives that we have identified, and then provide a consistent process for evaluating, documenting the public health threats. The consistency is not just within the site. It's consistency among sites. It's consistency between federal facilities and private sites. So it's a national consistency that we attempt to achieve through this process.

One of the things that we look at in determining risk is future use scenarios. What will happen to the Idaho National Engineering and Environmental Laboratory as we look down the years? It's easy to say what INEL will look like today and what it will look like 10 years and what it will look 30 years from now, but as you go further out in time, the risk potential, as has happened for many Department of Defense facilities, that the INEEL may leave the government hands and

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may wind up, in part, being using for residential.

That potential residential is one of the scenarios that we looked at that assumes that there may be a household. There may be a basement that is constructed. The soil that is the low grade would be excavated and brought to grade and that plants and vegetables would be growing on that property and families with children would be living on the property. That is the residential scenario that we looked at for the future.

The risk assessment that we performed for human health, carcinogenic potential, the numbers that we would use would be one increased tumor in 10,000-fold population. These numbers and these cancer slope factors that we divide from are based primarily on animal studies. For EPA we treat radionuclides and chemical risk the same. We look at a health base number, and we use that number for determining what the risk may be.

Once we've decided that there is unacceptable risk, and where these seven groups that you see on those boards around you, we decided there is a potential unacceptable risk in each of them, then we go to what is referred to as a feasibility study. First, we identify the

objective. What are we trying to achieve? What we're trying to achieve is to make a site an acceptable risk, so whether or not an alternative, can we take a risk that if we do nothing, we find that unacceptable, and by doing something, that residual risk now makes it acceptable to human health and the environment.

Once we've identified these objectives, then we look at alternatives that can meet those objectives. We analyze each of the individual alternatives to see how they fare against what we can call the nine criteria, which I will talk about in the next slide. Then we also compare between the alternatives to see which one best meets the criteria.

The nine criteria that we look at, we're evaluating alternatives which are: Thresholds, that is, it must be protective and must comply with the law. The balancing, which are technical, those five criteria round out our understanding of how well the proposed alternative or the alternative that we're evaluating, how implementable it is, whether or not in trying to implement the remedy, for example, for some facilities the remedy may be on-site incineration. Is the on-site incineration



more hazardous than the contamination present in the soil that is on the site? So then we look at the short-term risk to the community, to the workers, to the environment. We look at our implementables. What is the availability of the materials, of the administrative implementability of the project? And, obviously, we do look at the cost of the project.

The modifying criteria, there are two and the reason that it is listed in this order is based more on timing than anything else. The first thing that we have to do is find alternatives of past threshold. The second thing is, we do a technical evaluation, the balancing criteria, then we seek -- as DOE, working in a team, we have state EPA input, we have other stakeholder input and as meetings like tonight and in public comment periods that, as we're presently in, we seek the community input.

So with that knowledge, then, one of the first groups we're looked at is the Tank Farm interim action. Again, as I mentioned, the Tank Farm operation started in 1952. There are 20 underground tanks and they range in size from 18,000 gallons to 300,000 gallons.



A picture of the Tank Farm. This area is the stack for orientation and this is the Tank Farm area. This is a showing of construction of some of the tanks. This is the grade area over here. These tanks are all below grades, about 10 feet of dirt that sits on top of these tanks. The tanks were constructed on the bedrock.

So what we need to talk about are two things: what we know and what we don't know, because there is a lot about all of these sites that we don't know. We do know there is approximately a 146,000 cubic yards, based on what we know, as far as releases. We know that concentrations, at least in one spot, based on one report, can be as high as 400 R per hour. We know that some of the concentrations that we detected, for example, this number here, if people are familiar with what the Department of Energy refers to as their transuranic waste, that criteria is 100 nanocuries per gram, so we do know that some of these concentrations qualify as transuranic wastes.

We know that most of the radionuclide contamination in the Chem Plant is located in the area of the Tank Farm soils. Most importantly, we



know that by doing nothing there is run-on, there is precipitation that is moving into the Tank Farm that is driving these contaminants that are in the soil further down in the unsaturated zone and into the perched water and into the Snake Rive Plain Aquifer.

What don't we know? We really don't know how the Tank Farm will be closed. We know the Tank Farm is currently scheduled to be in operation until 2015. We know that we've expected the Tank Farm will undergo closure by 2018. There is an environmental impact statement being developed and there will be a closure plan that the Department of Energy will be submitting to the state with the closure of this Tank Farm. This Tank Farm -- besides the fact that it's high-level waste is also hazardous waste, so that term is usually combined to declare it to be mixed waste, and that will have to undergo a closure, but whether or not the tanks will be emptied and removed, whether they will be emptied and dropped, whether some other technology will be done, we don't have knowledge of that at this moment.

We also don't know how quickly and to what amount some of the contaminants that are

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present in the soil at the Tank Farm are moving into the aquifer. For example, plutonium is very -- the movement of plutonium is very dependent upon the pH of the soil, the oxidation state of plutonium and other parameters that we hope to obtain more information on. We don't really know all the spills and the locations of the spills. And it's also a moving target because as we talked about, there may be more spills. So we may never really know all the locations of the spills at the tank farms, including the Tank Farm until we take final action.

So, as I mentioned before in how we evaluate alternatives, the first thing that we look at are the objectives and we know that we want to protect the drinking water aquifer. We know that we would like to do filtration for the contaminated soils. We know that we would like to introduce filtration for the contaminated soils. We would like to prevent worker contact -- to ensure that worker contact is prevented by DOE action. And we know that we need to collect more information on the things that we don't know.

From that -- from those objectives, we've identified three remedial alternatives. The

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first one is always placed as a baseline. That is, what if we did nothing? What if we just let things go as they are? That is the No Action Alternative. Alternative 2 is actually institutional controls with additional monitoring. Alternative 3 involves -- Alternative 2, the institutional controls and surface water controls.

Now, based on the objectives that I mentioned earlier, Alternatives 1 and 2 really do nothing about the Snake River Plain Aquifer and protecting from leaching of these contaminants.

Alternative 3, based on what we have been looking at, has the ability of reducing the run on -- the rainwater, the percolation of water in the Tank Farm, by 80 percent. So by reducing the amount of water running through the Tank Farm, we also reduce the potential for leaching of those contaminants into the Snake River Plain Aquifer, and, at the same time, we give ourselves time to collect more information, to have a better understanding of the potential migration of contaminants like plutonium. We also give ourselves a better opportunity to understand how the Tank Farm will be closed and how the governor's agreement and the Environmental Impact Statement

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and the Hazardous Waste Closure Program and the Federal Facility Agreement and Consent Order all work together to achieve one solution for the Tank Farm.

With that, unless there is some clarifying questions, I would like to introduce Talley Jenkins.

AUDIENCE MEMBER: So, basically, you're saying that Alternative 3, by the time you learn more about the best way to clean up the facility?

MR. PIERRE: If we were to -- one of the things that we don't want to do in an interrupt action is to do something that is going to interfere with the final. If the Tank Farm -- if the decision was made to take the contents out and to close the Tank Farm in place, the shells of the tanks, we would still be obligated to prevent run-on and percolation of water through the sites, so that makes sense.

If the decision was made to remove the contents and remove the tanks, there may be quite a few years that would go on, maybe up to 2035 before that would actually happen. If that was the case, trying to prevent run-on, trying to minimize the water or take the water, which is currently

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infiltrating to 20 percent of that number, makes sense. So what we're doing is a decision -- or what we're proposing is a decision that we think makes good interim sense. It doesn't interfere with the final, and it may give us some protection.

AUDIENCE MEMBER: Can you give us a summary of the measures that you will take to control the run-off?

MR. PIERRE: Yes. I can give what is used at this time, recognize at this point we're talking about technology talk, which is a general statement, and as we go through the remedial design, we go into more specifics. So the obligation is to control the run-on and percolation by 80 percent. That is a lot of water. The steps that we will have to take is surface sealing of the soil. Steps that we will have to take is preventing flooding from the Big Lost River, redirecting the drains on buildings, potentially other activities, but those would be some examples.

AUDIENCE MEMBER: You said earlier in your presentation that the contaminants would go through the soil into the aquifer and eventually come out in the Snake River, perhaps, around Twin Falls. Do you have any evidence at all that shows

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that something will come out of the aquifer at Twin Falls?

MR. PIERRE: No, actually, I never said.

AUDIENCE MEMBER: I thought you did.

MR. PIERRE: I said it would go into the aquifer. As far as where that goes, we have no reason to believe, at this time, that contaminants would exceed the Safe Drinking Water Act beyond the INEL boundaries.

AUDIENCE MEMBER: That isn't what I -- that's all right.

One other thing that you said that the movement of plutonium would depend highly upon the PH of the soil.

MR. PIERRE: That's one of the factors.

AUDIENCE MEMBER: That's one of the factors. Could you explain why an acidic soil or a basic soil would accelerate plutonium through there?

MR. PIERRE: Actually, I would defer that to others in the audience. One of the things that we're looking at with PH conditions may be that the contaminants will be more soluble or that there will be less salting out, would be one. In other words, other contaminants, which would

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minimize some the solubility, would be either dissolved or precipitated out, is one aspect. Nitric acid is also an oxidizer. It's one of the acids that we're dealing with, but that can change the oxidation state of the metal. Those would be two aspects of it. It's outside of my field, so I don't want to go into any detail. I don't know if we have anybody in the audience who is good at -- we'll talk more about it later.

Any other clarifying questions?

MR. JENKINS: Thank you, Wayne. I'm going to talk about the contaminated soil sites. What we have under what we're calling the Group 2, or soil under buildings, are four sites.

The first one is a French drain. Basically a dry well that we dumped water into underneath the 603 complex. This drain was used prior to construction of the dry site. When they constructed this, they actually dug down and took part of it away. The second site -- we have two sites underneath the 604. The first one was where they found contaminated liquid underneath one of the liners in one of the hot cells. The second one was when they were building a fire escape exit, they actually dug through some contaminated soil.

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The fourth one within this group is a steel liner that corroded away and dumped radioactive liquid waste into the soil beneath the 601 complex.

That's what we know. What we don't know, we really don't know what D&D is eventually going do to these facilities. They could look at anything from complete removal of the facility to complete entombment, i.e., turning it into a giant block of concrete.

We also don't exactly know if the structure would act as a long-term cap, but we do know that it is, right now, as long as it's in place -- actually kind of acting as a cap would, which is minimizing the infiltration.

Based on this, the agencies believe that a deferred action is warranted, i.e., this would be that we wouldn't take an active remediation on these four sites until the D&D has been completed. By D&D I mean the deactivation, the dismantlement, the decommissioning, or any other activities associated with closure of these facilities.

Again, our objective in this one is primarily protection of the aquifer and protection

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of future workers in that there is no access right now to these contaminated soils.

Again, we looked at a range of alternatives, No Action for comparison purposes. In a containment this would be placing a cap over the facility or over that contaminated soil, all under D&D.

Alternative 3, which is actually excavation and disposal of contaminated soil, is contingent on the D&D removing the facility.

Again, we think one of the likely outcomes would be that D&D, entombed in place. We have one facility right now undergoing that kind of an approach and that is the old calciner facility. We also believe that Alternative 2 would provide intrusion, protection, and infiltration protection for about a thousand years. This would allow the contamination that is present to essentially decay away in place. Based on this, Alternative 2 is the agencies' preferred alternative.

The next group is what we're calling other surface soils. This is basically a group of 20 sites that were anything from spills, intentional discharges of radioactive liquid waste, based on the accepted practice at the time.

Decontamination fluids, storage of contaminated equipment and contamination that leaked from there. And we also have some soils that have been cleaned up and stuck into boxes.

What we know. We have 20 sites that are contaminated with primary radionuclides. There are some metals, and each of these sites present an unacceptable risk. The contamination on these sites generally range from surface, i.e., a couple of feet in depth, all the way, in some cases, down to 40 feet, the top of the basalt.

Based on what we know, we estimate that we have 82,000 cubic yards to deal with. However, we don't have a real good handle on horizontal and vertical extent, in that, when we went and sampled, we actually looked at the hot spot where the release was at and didn't try to get the extent of the plume. So this gives us an uncertainty on the volume. In addition, with some of these sites having contamination at depths greater than 10 feet, which is the basement scenario we have looked at for the clean-up scenario, we may have unacceptable leachable concentrations below that which would drive us toward excavating to a deeper depth, which would also increase the volume.



Based on these, we believe that remedial action is warranted. Again, primary purpose to protect the aquifer and prevent an unacceptable risk from a surface exposure.

Again, we looked at a variety of alternatives anywhere from no action, institutional controls. This would, essentially, be restricting access to these areas. Alternative 3 is to place a containment structure, i.e., a cap over each of these release sites.

The last two that we evaluated were excavation, treatment, if necessary, and either on-site or off-site disposal. I don't know how many people have heard about it, but we have been talking about an on-site disposal facility. The on-site disposal facility is under 4A. This is a -- the best way to think is like a module-like approach. For this plan we would be constructing the cell capacity necessary to implement this remedy, but it would be designed in such a way as the other future CERCLA decisions to expand the capacity if necessary.

This facility would be RCRA compliant, but not a RCRA facility, i.e., it would meet all the requirements of RCRA from a substance



standpoint but not administrative, i.e., we wouldn't get a permit.

4B is removal, treatment, and off-site disposal. This is where we evaluated sending it to a commercial facility for ultimate disposal.

I'll just skim down. 4B has some increased short-term risk, i.e., because of the treatment to get it acceptable for off-site shipment, we have a higher treatment cost and more worker exposure.

4A, we would essentially be doing something similar to 4B except it would be on site, but we would still be disposing of it in a facility designed for acceptance of that kind of material. Based on this, the agencies believe that 4A is the preferred alternative.

SFE-20 tank is an underground tank, this being grade level. This is below 10 feet. This being the tank down here. What we have is a tank that was used to collect radioactive liquids from 1957 to about 1976. In 1976 we cut and capped the lines and, basically, abandoned the tank in place. What we know is that there are various radioactive constituents in there, primarily cobalt, cesium, strontium along with some plutonium and Eu and



Pu isotopes.

If we do nothing, eventually the contamination would leak out of the tank and the tank contents would eventually reach the environment, which could eventually, at some point, reach the aquifer. What we don't know is actual concentrations of the contaminants within the liquid or the sludge and that we have about 400 gallons of liquid and about 55 gallons of sludge.

Based on this, the agencies believe remedial action is warranted. This would prevent contamination of the aquifer. Again, we looked at a variety of alternatives, anywhere from a No Action to Alternative 4, which is complete removal, treatment, and disposal.

Alternative 2, basically, fills or entombs the facility in place, fills the tank the rest of the way full with concrete and the structure.

Alternative 3 is similar to Alternative 2 with the exception that we would remove the liquid prior to grouting and the liquid would be treated.

Alternative 4 would remove the liquid,

treat it, remove the sludge, treat it, and dispose and remove the structure, the piping and the associated facility and dispose of it appropriately.

Based on that, the agencies believe that Alternative 4 is what we are calling our preferred alternative.

Group 6 are the buried gas cylinders in two isolated areas outside of the facility. One over here by the river, Lincoln Boulevard, and the other located kind of northeast of the facility. This one over here was basically construction gas cylinders that were basically disposed of in a pit or a trench when they completed construction of the Chem Plant. We believe there are between 40 and 100 buried gas cylinders. These are cylinders that have acetylene or oxygen or carbon dioxide that are used in welding, cutting operations.

In the case of the other one, Site 94, we have four cylinders that are suspected of containing hydrofluoric acid. That's what we know. We do know or suspect that if we do nothing, we would have a potential for a fire or an explosion, in that, at some point, these contents would be released. What we don't know is exactly



what was buried along with the containers or how much pressure is in those containers.

Based on this, we believe that action is warranted. This would reduce the safety hazards associated with these two sites. We looked at three alternatives. Again, our No Action that we compare everything against, our removal and treatment and disposal action. This would essentially excavate the cylinders, stick them in a containment facility, release the gases, treat the gases, and then dispose of the cylinders appropriately. And the third one would be a containment, to place a cap over both of the two sites.

Based on these, Alternative 2, like I said, remove it, but there is a safety concern any time you're dealing with pressurized gas cylinders. We still believe that Alternative 2 is the best thing that we can do for that. Any clarifying questions before I turn it over to Scott Reno?

AUDIENCE MEMBER: Soils under the buildings, obviously, got to be tied into decon, et cetera, the buildings. How do you guys tie into that or have they, for example, begun to address



deconing of the facilities, the soil, which you're now starting to talk about?

MR. JENKINS: That was part of the reason I said the preferred action was appropriate. We don't really know that -- there are plans right now. They are gearing up for deconing or starting to decommission the 601 facility. The 604 facility will probably be around for the next 20 years or so. 603, we're supposed to have the fuel out of there by 2035. So what we really have is facilities that are going to be around for a very long time. We don't know what they're actually going to end up with, but we believe, at this point, the structure is acting as a cap and the contamination beneath it is not leaching.

AUDIENCE MEMBER: So you would pursue that even with those dirty facilities above it?

MR. JENKINS: We would -- let's say that they decided to entomb the 601 in place. What we would try to do is make sure that whatever entombment they did was protective enough that whatever cap we came up -- we wouldn't have to build a lot of cap over that area. It's one that we're really going to have to have a big issue on



that one.

AUDIENCE MEMBER: Coordination is.

MR. JENKINS: Coordination is a big issue on that one.

AUDIENCE MEMBER: If I might, one more question. The new engineered facility, that's what we don't need more of, which we're going to process this stuff and get a new facility and contaminate it. That would be a constructive comment, I think. A new engineered facility, my goodness.

MR. JENKINS: Oh, you meant from the soils to obviously become contaminated.

AUDIENCE MEMBER: Yeah.

MR. JENKINS: Maybe I confused you there. What we're talking about is a landfill. It wouldn't have be to be deconed afterwards. What we're talking about is excavating a hole in the contaminated area. We would put clay in the bottom, then we would put a couple different layers to collect the leachate, a little bit of soil above that, then we would actually start hauling the contaminated soil on top, and that the cap would be placed over the top of that on that.

AUDIENCE MEMBER: Not necessarily a structure then?

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MR. JENKINS: No, there wouldn't be a typical structure.
AUDIENCE MEMBER: Could you give me the dates again.
MR. JENKINS: I believe in the case of 601, we're starting, that is, started to wrap up a little bit. It's one of the issues that we will deal with be under the EIS. We will make some kind of a decision on that in the near term, i.e., in the next couple years. In the case of the PEW, the 604 complex, that is one that we're still using to treat waste, so it could be around for the next 20 years or so. And 603, we know that we have to have the fuel out of there by 2035. That is not a bad date to pick from.
AUDIENCE MEMBER: Will all three buildings, D&D decisions be made in the EIS?
MR. JENKINS: I'm not sure on that. Tom?
MR. WICHMANN: I'm Tom Wichmann with the Department of Energy. We will analyze the impacts, the alternatives, Beatrice, but I do not know if those decisions will be made at this time back on the plutonium. We will look at the impacts, but I don't know what is in the people's minds back

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East.
We will certainly look for public comment. If the public feels strongly that those decisions should be made, let us know. That will help. But we are going to look at the impacts.
AUDIENCE MEMBER: The impacts of D&D; is that correct?
MR. WICHMANN: Yes.
AUDIENCE MEMBER: The contents of these cylinders that you're talking about, what kind of gas? Any radioactive gas?
MR. JENKINS: No.
AUDIENCE MEMBER: You said there was a potential for fire and explosion hazard due to a eventual deterioration. You seem concerned that we have to take those up. Won't the hazard be greater as we took them out rather than leave them there?
MR. JENKINS: To excavate them, it is a higher short term, i.e., a worker risk than the risk to the worker would be if we left them in place. However, there are companies out there that do this for a living. We wouldn't just go in, mucking and trucking.
AUDIENCE MEMBER: One other question on that. Is there not literally millions of these

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tanks around the nation used for all kinds of industry that are sitting out there unprotected? And so why are we so concerned about these that are buried, if they have the same kind of gases that we can go down to the store and buy?
MR. JENKINS: Basically, what we have here is a dump, in that when they actually went out and were constructing -- at least for the acetylene and oxygen cylinders, there was a nice convenient hole and they just buried them. They have flooded out once before. They were washed out when the Big Lost River flowed in the '57, '58 time frame.
AUDIENCE MEMBER: Have any injuries occurred?
MR. JENKINS: No, none that I'm aware of.
AUDIENCE MEMBER: One other comment I may make -- if I may?
MR. JENKINS: Yes.
AUDIENCE MEMBER: It would be helpful to have page numbers on here.
MR. JENKINS: Oh, okay.
AUDIENCE MEMBER: On the hydrofluoric acid tanks, since they are several hundred yards from the facilities, why not just let them

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deteriorate and explode one by one? What is the problem with that?
MR. JENKINS: Does somebody want to answer that one?
MR. JAMES: If I could help out a little bit, Tally. This is Bob James with Lockheed, Lockheed-Martin. I think the issue with the gas cylinders is probably over a short period of time a greater risk by retrieving them, but we know when that risk is going to occur so we can manage it. If we leave them uncontrolled, the way to bet is that they will fail when no one is around but there is no way to guarantee that. If we actively go out and retrieve them, we can define when that risk will occur and we can takes steps to mitigate the risk. If we leave them alone, there is not telling what might happen.
AUDIENCE MEMBER: How long have those tanks been in the ground?
MR. JAMES: One group since the '50s, the group that is by the river. And the compressed gas cylinders were required to be hydrostatically tested every five years. And hydrotesting in the early '60s, wasn't it?
AUDIENCE MEMBER: No, 1956.

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MR. JAMES: We have no idea, really, what the condition is or what the deterioration rate may be.

MR. SIMPSON: Can we hold off on some of the questions until we get through. I know there is a great interest in hearing Scott's portion of the presentation. We talked about water. Can we hold off on some of these.

MR. RENO: I want to thank you for the good turnout tonight. We've been working on this for a long time, and I think that you can see how complex this project is and how many different angles and different nuances it has.

I'm going to go ahead and wrap up these last two sections. It will take 10, may be 20 minutes, then we will hear from you which is why we're really here.

This informational session is provided for the benefit for those who maybe unfamiliar with the facility. I see a lot of people around here who have a real intimate knowledge of the INEEL, and the Chem Plant in particular. And for you folks, please don't be insulted if I talk about things in layman's terms, but I'm going to try to make this as simple as I can to understand for

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those who aren't familiar with the facility.

The key to understanding how the contamination moves at the Chem Plant or the INTEC facility is understanding how the water moves. The aquifer and the perched water bodies are interrelated, in that the water that comes into the surface, either from man-made sources, are pumped out of the aquifer and are recharging elsewhere, or a natural precipitation affect these perched water bodies, which, in turn, mobilizes the contamination or dissolves contamination and can carry it to the aquifer.

We have three perched water bodies at the Chem Plant. The first major perched water is 110 feet below the ground surface. The second one is at 140 feet, then we have another significant perched water body at 380 to 420 feet below the ground surface. And then the regional aquifer, the Snake River Plain Aquifer is present at about 460 feet below the ground surface. That aquifer is about 250 feet thick.

What is perched water? Perched water is water that is migrating down from the surface through the porous media that is present, the upper portion. The upper 40 to 50 feet at the Chem Plant

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is primarily sand and gravel. And it's underlying the next 60 feet to 110 feet below the ground surface, mainly fractured basalt. There it encounters a less permeable layer. It's clay and sand. You can think of water when it gets there not moving as fast and somewhat ponding within the floor spaces that are present in the fractured media.

In the perched water what we know about it -- actually, I was asked to point out that last figure I showed you with the injection well, we'll get to this in a minute.

For the contaminants in the perched water, we know that we have technecium-99. We have nitrates. We have strontium-90. We have neptunium-237, and we have tritium. The primary contaminant in the perched water is our strontium-90. We have seen concentrations of the strontium-90 as high as 500,000 picocuries per liter in the perched water bodies. And by comparison, the drinking water standard for strontium-90 is only 8 picocuries per liter. We also feel that we have at least one well that indicates that we have a continuing flux of perched water carrying surface contaminants to the aquifer

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today.

Now, the sources that reach the aquifer, the primary source is the plants' percolation pond. They are south of the facility, and they contribute on the order of 690 million gallons a year of recharge to these perched water zones. The second largest source of recharge or of water available to these perched water bodies is the Big Lost River. And that source is variable. It varies from between 100 to 200 million gallons a year, but we really don't know for sure because some years the river doesn't run at all. Some years it runs year-round. We are going to try to further quantify that in conjunction with the Tank Farm investigation. On average, that river runs about one year out of three.

The next largest contributor is natural precipitation, rain and snowmelt. In the northern area of the Chem Plant, which is our area of greatest concern, the area beneath the Tank Farm, we believe there is on the order of 4 million gallons of recharge from natural precipitation.

With the sewage treatment plant, that is their sanitary waste water disposal infiltration

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lagoons, between 25 and 30 million gallons a year. We have another 12 million gallons a year from leaking fire water lines, another 2 million gallons a year from lawn irrigation activities. And then we've got a steam condensate disposal system that essentially goes into dry wells. They are very shallow, no more than 10 feet and filled with gravel that disposes of the steam condensate from the heating system from the facility. And that is on the order of 4 million gallons per year.

What we don't know is, how much of this water do we need to eliminate from the system to prevent contaminants from migrating to the aquifer at unacceptable concentrations? For the perched water, we didn't really do a risk assessment because we didn't believe that that water would be available once man-made sources or recharge are gone. That is, the plant is no longer in service, things were brought to grade, and it's the only natural precip in the river that recharges it.

So we didn't really do a risk assessment for the groundwater pathway, but we know that there is a good deal of contamination present in this zone that will impact the aquifer. Our objective is to reduce the leaching, the strontium-90 to the

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aquifer within a time frame that will allow that aquifer to be usable again within 100 years and to minimize these man-made resources of recharge to the aquifer.

We looked at three alternatives. The first one is our requisite No Action alternative. The second one is we looked at additional institutional controls to the existing controls that are present at the facility and to take a phased approach to, if you will, turn off some of these water sources. For instance, moving these perc ponds to an area that will no longer recharge this contaminated zone.

Then Alternative 3 is the same as Alternative 2, only it would additionally seek actively to remove this perched water from the subsurface and treat it and dispose of it.

Now, Alternative 1 doesn't protect the aquifer, which already, in the area beneath the Chem Plant, exceeds drinking water standards. We have an ongoing flux of contamination though this aquifer.

Alternative 2 would, over time, eliminate this flux of contamination to the aquifer. Alternative 3, which would further pump

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and treat that, was a $260 million alternative. Alternative 2, which is to let it drain out, to dry it up and to turn off these sources is only a $30 million option.

For the value added, we do not feel that the pump and treat had much to offer us. The reasons for that are, this interbed -- these interbed areas are not this nice sloped drain that will lead to a well where we can extract all that water and recover it all and treat it. In contrast, if you have ever been to Hell's Half Acre and you've seen the lava flows emulating, we probably have an uneven surface there. No matter where we put the wells, we are not going to recover 100 percent of this water to begin with.

Further, there is an absorption coefficient that is associated with our primary contaminant of concern, that is the strontium-90 that we think is between 12 and 24. That means that one of 1/24th of the contamination is present in the water portion. The other 23/24ths or 11/12ths, whatever the case may be, is present in these soils. So if we don't get to pull all the water out, we still have only recovered a minor percentage of the total amount of contamination

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there. We felt that the better alternative was to remove the sources of recharge and to allow the existing perched water to drain out.

Now, on to the aquifer. The primary source of contamination in the aquifer is the infamous ICPP injection well. From 1952 until 1984 one and a half to two million gallons of surface waste water per day were discharged to this well, which went directly to the aquifer. Over the 30 years or so that the well was in operation, some 11 and a half billion gallons of waste water was disposed of through the well.

The well was taken out of routine service in 1984 and was permanently pressure grouted shut from the bottom, which the bottom of the well is 598 feet deep, but to the surface at 300- -- well, it was perforated with detonation cord and pressure grouted at 300 PSI to the surface, so that well is not going to be used any longer. But it is the primary source of our contamination. So 23,000 curies of tritium was injected through that well over 30 years of operation.

As I mentioned before, we also have somewhat of a contribution ongoing for perched

water entering the top of the aquifer. We have four contaminants that are present in the aquifer today that are associated with the injection well. They are mercury, which we think is confined to the immediate area of the former injection well. We have radionuclides: strontium-90, tritium, and iodine-129.

This is the strontium-90 plume. On the outside of this contour here corresponds to this 8 picocurie per liter, strontium-90 maximum contaminant level.

AUDIENCE MEMBER: Which line?

MR. RENO: This outside line. That is the 8 picocurie line. For reference, if you're familiar with the facility, this is the Central Facility Area, which is about three miles south of the Chem Plant. This is Lincoln Boulevard that runs north and south throughout the INEEL. This is Portland Avenue, which goes from CFA over to the RWMC area in there.

How about that one. This is our tritium plume. Again, this is the Central Facilities Area. On the outside of this line corresponds to our MCL contour line for tritium, which is 20,000 picocuries per liter. Now, the strontium-90 and



the tritium both are fairly mobile contaminants. That is, they move fairly readily in water, and they have relatively short half lives.

The tritium has a 12.3 year half life. The strontium-90 has a 29.1 year half life. What this means is, since the injection well has been taken out of routine service, these areas corresponding to the strontium-90 and the tritium MCL contour lines have been receding. They are moving back closer to the plant. We do think that due to this, current flux to the aquifer from the surface contaminants that the trend is not as pronounced as it was for the first few years because of us reaching somewhat of a quasi-steady state or equilibrium in the aquifer.

What we're not seeing, a real receding of the plume, is our iodine-129 plume. The reason is because iodine-129 has a 15 million year half life. Even though it readily moves with the water and dilutes and disperses, we're not seeing any radioactive decay associated with the iodine-129.

This line right here is associated with the area that currently exceeds the 1 picocurie per liter drinking water MCL for iodine-129. The highest measured concentration we have for recent



data in the aquifer is from this well, between three and four picocuries per liter. But that is over an open interval well, and we feel there may have been some depth within that well that were of higher concentrations that were diluting with, maybe, somewhat cleaner water from other depths within the aquifer. That is a key point when we look at what our preferred alternative is for the aquifer. I will get to that in a moment.

What we know is we have a sole source of drinking water to the region. Strontium-90, iodine-129, mercury, and tritium are the contaminants of concern and that our fate, and transport modeling are computer estimations of what will happen in the future will indicate that with no action, we're not going to be below those MCLs 100 hundreds from now. We may not be too far over them, but we're probably not going to be under them. And we know that we have an ongoing flux of contamination from the perched water.

What we don't know, is we don't know really how close we're going to be in our predictions and what will happen in the future for our groundwater model. So one of our alternatives is going to look to verify some of



those modeling assumptions.

We believe that a remedial action is warranted because we certainly have an MCL exceedance in the aquifer that we think is going to continue up until 100 years from present and we would like to see the aquifer restored for beneficial uses in the vicinity in the Chem Plant.

The first alternative is our requisite, No Action alternative. Alternative 2A is institutional controls, long-term monitoring, and source control. That source control borrows upon some of these perched water remedies. That is that these sites are interrelated.

The modeling indicates that if we do remove the percolation ponds as a source of recharge to the perched water and eliminate pumpage from the facilities' production wells that the aquifer will, due to the delusion, disperse, and decay, be suitable for use under our current drinking water standards again 100 years from now.

So Alternative 2B, we seek to go out and verify these modeling assumptions. What is being proposed is five new monitoring wells that we would sample at discrete intervals along the depth from the top of the aquifer to the bottom to ensure that

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none of these intervals exceed an action level. And action level, we establish it by asking our computer model what concentrations is the maximum we can see in the aquifer today of iodine-129 that we can be sure that if we're below that, we will still be below our drinking water MCLs in 100 years. The answer was 11 picocuries per liter. So that is what we're looking for in these five wells. If we exceed that, then we would pose a contingent active remediation of that zone that exceeds the 15 picocuries per liter, which we think most likely will occur in the low permeability zone that occurs. It's an interbed we have in the middle of the aquifer, kind of sandwiched in.

The last alternative, Alternative 3, is very similar to what I've just described for Alternative 2B, only it's a contingent -- more aggressive approach to groundwater pump and treat. Instead of targeting a zone within the aquifer, we would just pump over the entire depth of the aquifer. Our preferred alternative is Alternative 2B, which is institutional controls with monitoring and contingent hot spot removal if the action level is exceeded.

Which brings us to your last slide. We

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want to know what you think. If you have any questions that we can clarify what we're proposing to do, we'll entertain those questions and try to answer them the best we can. We encourage you to comment and ask questions for things that you don't understand. We expect to have a Record of Decision issue next summer that will include our Responsiveness Summary, all the comments that are presented to us this week and before the comment period ends. And we expect to get to work out there immediately after the signing of the ROD this summer.

AUDIENCE MEMBER: I have just one question. You mentioned millions of gallons of water that was put into the aquifer, but you didn't mention how much water was in there, so I don't know how much lemon juice you put in the lemonade.

MR. RENO: I've been told that the Eastern Snake River Plain contains as much water as Lake Erie. So, you know, there is dilution that occurs there. We know what the concentrations and the contaminants are in the vicinity of the Chem Plant.

AUDIENCE MEMBER: On the map of the iodine, it doesn't look like you found the action

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levels of 11 picocuries per liter.

MR. RENO: No, the highest that we've seen, the highest concentrations observed in the aquifer are between 3 and 4 picocuries per liter, but it's over open interval wells. And these wells have vertical gradients. There is mixing from the different zones that are within there. The concern is that if somebody wants to put a well in in the future to use for drinking water purposes, that there is not good control whether they could screen that well for what zone they might be extracting their water from.

AUDIENCE MEMBER: Is the mercury just a side issue? You didn't address that at all in the aquifer business.

MR. RENO: That's a good point. The mercury is not a side issue. We feel that the mercury is confined to the area immediately surrounding the old injection well. We've never really seen it in any of our monitoring wells, so I think it's pretty much absorbed.

AUDIENCE MEMBER: I have one other question. The perched water alternative to stop the sources, that sounds like it would be a heavy influence on the aquifer itself. Why don't we go

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ahead with that alternative regardless of whether we do anything long term with the aquifer?

MR. RENO: I think that's a good idea.

AUDIENCE MEMBER: That is something that could be addressed now. Do we continue to add to this perched water stuff out there?

MR. RENO: Well, presently, until the decision is reached but, you know, so the study portion is over for the perched water portion of it other than we are going to take a phased look. We're not sure exactly which sources to remove to stop the flux to the aquifer, so we will start turning them off one by one.

AUDIENCE MEMBER: Because you said if that were effectively done, in 100 years that might well solve the aquifer problem if I understood you correctly.

MR. RENO: You heard me correctly.

AUDIENCE MEMBER: What are the percolation ponds used for?

MR. RENO: The question was what the percolation ponds are used for. And they are used to dispose of plant service waste water. This is cooling waters and processed water that is used throughout the plant. The ponds currently have a

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permit from the state of Idaho to discharge the service waste. That permit is up for renewal in the fall of the year 2000. They are disposing of the same kind of liquid that went down in the injection well.

MR. RAUNING: Scott, in reference to this question on shutting off the water, you might mention that we're going through some steps to get the perc ponds shut down.

MR. RENO: Dennis is right. The Lockheed people and Department of Energy are currently evaluating alternative methods for disposing the plant waste water. This decision hasn't been made yet. They do have to do something to meet the new Idaho Groundwater Water Quality Rule, which was promulgated in April of last year, and will affect the effluent concentration limits that will be allowed when the permit is reissued, if reissued. Anyway, in an ongoing effort to evaluate an alternative way to dispose of the plant waste water as we speak.

MR. SIMPSON: We can kind of deferred a question that came up earlier during Talley's portion of the presentation, and that is how these soil types contribute to plutonium mobility --

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sorry, that was during Wayne's.

AUDIENCE MEMBER: The soil types that we're talking about, especially in the Tank Farm, we have highly acidic waste exposed to the tank and so the soils that are contaminated in the Tank Farm, especially the ones near the leaks, are also still highly acidic. I think we have a pH2 in some of our soil samples. Low pH soils or low pH liquids tend to mobilize heavy metals. Plutonium is a heavy metal, so that low pH, as long as that stuff is in that state, is going to be fairly mobile. As stuff moves down through our soil, it will tend to be get buffered and neutralized because we have so much calcium carbonate. Our natural pH out there is about 8. So we think as the sediment moves downward through the soil column, it will gradually become less mobile. But in the form it was released, it was released as a processing liquid, and it was disolved in acid. So it was released in a fairly mobile form, but the high pH soil that we have will tend to reduce that mobility very rapidly.

AUDIENCE MEMBER: I had a question that may be well on the same lines, and it was from Talley's presentation. In the list under other

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surface soils, "What We Don't Know," there is a bullet, "Depth of excavation below 10 feet will be determined based on the leachability of the contaminant." Did I hear you correctly refer to the 10 feet as the basement level?

MR. JENKINS: Under our land-use scenario, what we've decided is that -- what we call a basement or the future residential use, it was assumed that a homeowner would go out and dig a 10-foot basement. That's what we use for a depth excavation, at least for an evaluation.

We do know for a couple places there are significant contamination at depths greater than this 10 feet. One of the issues that we'll still have to deal with is, is that concentration high enough and leachable enough that it would still impact the aquifer if we were to remove the top 10 feet.

AUDIENCE MEMBER: So the first 10 feet, though, is to protect the future resident?

MR. JENKINS: Yes.

MR. SIMPSON: I would like to take about a 10-minute break right now. If you can think of some questions during the break, we will come back and address those at that time, and then we will

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have the formal comment session.

Are there any other questions at this time?

(Recess.)

MR. SIMPSON: Are there any other questions?

AUDIENCE MEMBER: Are these not clarifying?

MR. SIMPSON: These are as detailed as you would like them to be.

MR. PIERRE: Bob, if you want to come up.

AUDIENCE MEMBER: The one that I have my display open to is other surface soils, the material, the contaminated soil that will go into the engineered disposal facility, I understand that you haven't established waste acceptance criteria for it, but could you do some sort of thumb-nail comparison between soils that will go into that facility from the Chem Plant, compare that with material that BNFL will be treating at RWMC, and the material that might go back into Pit 9 after treatment and the material that is being left in place at the Naval Reactors Facility?

MR. PIERRE: Keith Rose is in the

audience and is the EPA WAG manager for the Naval Reactors Facility. I will take a shot at the RWMC.

The material that BNFL will be handling is transuranic waste.

AUDIENCE MEMBER: Not nearly all of it, it's alpha.

MR. PIERRE: The Subsurface Disposal Area, we're looking at that material as -- the decision that they're making is whether or not the material exceeds 100 nanocuries per gram, those wastes that exceed 100 nanocuries per gram of TRU, transuranic, that material will be packaged and sent to waste sites like the Pilot Plant. The material that is less than that, as far as where that is going to be managed, that decision, as far as I know, has not been made -- I'm getting to Pit 9 --

AUDIENCE MEMBER: No, Wayne, I think that you're incorrect about BNFL. I think a good deal of the treatment at BNFL is driven to transform alpha waste into TRU waste. It is already -- it may be even lower than 6, but potential 100, 10 to 100. They are not starting with TRU waste. So let me rephrase the question.



What would alpha 10 to 100 go in this facility?

MR. PIERRE: No, would be the simple answer. And for Pit 9, alpha greater than 10 nanocuries per gram would also not go into Pit 9 when Pit 9 is completed. Again, the same as with Pit 9 and with the transuranic storage area, you're right. A lot of the waste is alpha waste, but the goal is to take the waste and wind up with two waste streams. One waste stream is above 100 nanocuries per gram to another waste stream that is below 10 nanocuries per gram. That is also the goal of Pit 9.

AUDIENCE MEMBER: For the Naval Reactors Facility --

MR. ROSE: I'm Keith Rose. I'm EPA's project manager for the Naval Reactors Facility. I don't recall the highest concentrations of contaminants there, but the primary radionuclides of concern are cesium and strontium, and I believe the majority of the soil contamination there presents a risk for the 100-year future residential scenario, like 3 or 4 above our clean-up goal. So it's not -- at least not in the order of the magnitude above that, but like 3 or 4. I know there are some spots that are a little higher than



that because they are at the end of the discharge pipes or whatnot, but I don't recall the exact numbers.

AUDIENCE MEMBER: So it is pretty much the same kind of soil that would go into the Chem Plant?

MR. ROSE: Yes. That soil is very similar to what would be taken up from the Group 3 soil group at the Chem Plant and put into the repository, yes, that would be similar.

MR. PIERRE: Does that answer your question, Beatrice?

AUDIENCE MEMBER: Not the underlying questions, but go ahead.

AUDIENCE MEMBER: I don't understand alpha and transuranic. I've been out of it for a couple years. Define that, please.

MR. NITSCHKE: Well, it's kind of an INEEL distinction that has been made and there has been some regulatory differences through time, but statutorily, typically, what you're familiar with is, transuranic waste is that waste having more than 100 nanocuries per gram and nuclides greater than 20 years or something.

At the INEEL, for the purposes of



management disposal at the SDA, we set a limit of 10 nanocuries per gram. So we created this orphan waste, essentially, between 10 and 100 nanocuries per gram that we typically now call alpha contaminated low-level waste. That is the distinction between 10, 100, transuranic, and alpha contaminated waste and below that is low-level waste.

AUDIENCE MEMBER: That particular waste can be handled in nontransuranic facilities, is what you're telling me?

MR. NITSCHKE: Not on the INEEL.

AUDIENCE MEMBER: Between 10 and 100, I mean. You're just saying that's just low plutonium or low transuranic waste, and it's nontransuranic waste.

MR. NITSCHKE: It's still alpha contaminated. It depends on what you're doing with it and in its waste form you may take whatever steps.

AUDIENCE MEMBER: Does anybody else in the world do this, categorize this? I don't know now. I've been out of it a couple years.

MR. NITSCHKE: Of course, the limit through the years has changed somewhat.

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AUDIENCE MEMBER: It's gone up, though.
MR. NITSCHKE: But we kept it down for the purposes of disposal at the RWMC.
AUDIENCE MEMBER: It's the B-10.
MR. NITSCHKE: Yeah, it is. But we kept it for other reasons, an intruder scenario and so forth for disposal criteria.
AUDIENCE MEMBER: They kept it that way because it's all mixed together.
AUDIENCE MEMBER: So a little bit doesn't hurt you.
AUDIENCE MEMBER: I have a question. We have been talking about the dangers of this waste and the problems caused by it, but in the past 50 or 60 years, have there been any known deaths that can be traced directly to the buried waste or the stored waste or the transportation of any of this waste? Are there any known deaths or injuries because of these dangerous things that we're talking about, and if not, how dangerous are they?
MR. NITSCHKE: I think I like my seat in the back much better. I'm really not prepared to answer that completely. I can give you my own thoughts, most of the types of things that you're talking about, a death would be through an accident

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or so forth, the kind of effects that you get from contamination, typically, are like cancer, which would take place over time.
As you are well aware, cancer is such a pervasive result of aging, whether or not that particular exposure or any one of a number throughout your whole life in other situations is maybe hard to distinguish, so I can't answer that directly, but there aren't people keeling over, if that was your question.
AUDIENCE MEMBER: It was not quite my question. How many of these people are keeling over from cancer? For instance -- I understand that about one out of four of us are going to get cancer eventually, and you're talking about 1 in 10,000. How dangerous is the situation that's causing one additional cancer in 10,000 compared with going fishing?
MR. NITSCHKE: The fishing risk and the carcinogenic risk are really to disparate to try to make a comparison. What we're really saying is an individual's incremental cancer risk is 1 in 10,000. You can argue how significant that is, but that is the statutory limit that we're targeting for, and that's our job.

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MR. PIERRE: And that is the upper risk range of that limit.
AUDIENCE MEMBER: I told Tom Wichmann -- but he walked out -- that I had some EIS questions, but but he walked out anyway.
It's my understanding that one of the alternatives being considered for high-level waste tanks is either leaving them in place or, you know, putting contamination in them, grouting them and leaving them in place. Does leaving those tanks in place make your job of getting contaminated soil removed harder?
MR. PIERRE: If the contaminants, the mobility of the contaminants in the Tank Farm soils are such that a containment scenario, a capping scenario, would not effectively protect the aquifer, yes, it would. Then we would have to evaluate the needs of one program versus the needs of another. In other words, the objective of all the programs are to protect the receptors, protect the Snake River Plain Aquifer, to be protective in the world that we measure risk in. So if the decision was to cap in place and if the risk was unacceptable, then the decision to cap in place would have to be reviewed.

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MR. JENKINS: Let me see if I can clarify a little bit. I think the other part of your question was, for instance, if they filled the vaults full of concrete would that make digging the soil up harder? The answer is no. Whether the structure is there or not, it really wouldn't impact that, but the risk to the groundwater would be impacted by whatever we leave behind, either the soil or what is in the tank.
MR. PIERRE: What Talley is getting at, the tanks sit on the bedrock, but it also gets into what type of technologies we would need to look at it as we do the investigation. Probably the easiest way to answer that is, as we are doing additional work, we will be back, or at least some of us, by the year 2003, to discuss that coordination. And at this time we don't really know what the final solution is on the Tank Farm, what is going to be left in place, what is going to be removed. And we're collecting additional information, as far as what the soils in the Tank Farm represents, as far as the risk to the groundwater and whether plutonium is one contaminant that needs to be addressed, special from the strontium-90 concerns.

MR. JENKINS: Did we answer that, Beatrice?

AUDIENCE MEMBER: Yes, I guess, because my next question was, in the Tank Farm presentation it said, "However, even if the site is eventually capped as a landfill." And I wanted to know what is the possibility of that eventuality taking place, and, perhaps, compare that eventuality to removing 10 feet of contaminated soil, less contaminated soil than other areas.

MR. PIERRE: I really have no idea of the eventually of capping in place. What I identified in my presentation was to take a look at what I would consider to be, let's say -- I don't want to use the worst case, but let's say an extreme case of trying to cap in place, that even under that scenario, because the interim action cannot be inconsistent with the final action. Even under that scenario, we would still want to prevent run on. So the solution that we're proposing as the preferred alternative for the Tank Farm soils from our understanding would apply to the potentials that may occur in the decision on the Tank Farm, but as far as the potential, that is something that I would defer you to Kathleen Trevor



to discuss that.

AUDIENCE MEMBER: It would seem to me that Group 3 is an area, how large?

MR. JENKINS: Group 3 is basically the 20 sites and together they added up to be, oh, 40 or so acres.

AUDIENCE MEMBER: I guess my point is, it would seem to me the other surface soils portion of this project is probably the least confident in the whole batch, based on it was developed as a result of inadvertent spills, spills may or may not have been documented, and I would say you indicated 54 or some number of instances.

Knowing the early days, how do you determine that they aren't within these multiple acres additional surface soils where some guy in 1958 took a value and dumped it in the ground and it no longer is emitting radiation that is well enough for you guys to determine?

So that's a real bad one there. At least around the Tank Farm and the other facilities and bottles of gas, et cetera, you know, generally, where they are. Unless you have more sophistication now than what I'm aware of, those things could be in that ground, locations well and



above 20 source areas.

MR. JENKINS: I guess I'll answer that in two parts. The first being for the investigation that we're talking about, we have actually gone out and interviewed former workers there, searched the records. That is how we came up with the 95 sites.

AUDIENCE MEMBER: Ninety-five.

MR. JENKINS: Ninety-five is what we started with. However, we have and probably will continue to identify additional sites all the way through closure of the entire facility. So we based our evaluation on the sites that we know at this point, and we have a process to capture those that we identify in the future.

AUDIENCE MEMBER: But you would expect that there may well be additional?

MR. JENKINS: We may well come across more in the future. That was my only point because documentation and procedures and operational conditions in those days weren't, I'll tell you, nearly so disciplined as we think they are now.

MR. PIERRE: One of the sad truths of the Federal Facility Agreement and Consent Order, when we created it back in 1990 and signed it



in '91 was this kind of static relief that we will be able to go through the process once and reach decisions. At that time, we had the thought of 2001. You can see it's not 2001 anymore; it's 2004.

But the reality is, as the years go by, new sites keep getting identified. The fact that a lot of the closures are leaving waste behind, leaving restricted and limited use. And I quite honestly today see no end in sight for the Federal Facility Agreement and Consent Order. It's going on forever.

AUDIENCE MEMBER: It's more of a comment than anything else.

AUDIENCE MEMBER: My question is, as far as the contaminated soil, is it not so that you have to concentrate some of the contaminants in order to have them acceptable by the WIPP? Is that so? If that is so, are you not making the sample more dangerous than it was before? So why don't you go in the opposite direction and simply spread this stuff out?

MR. PIERRE: I'll take the first part of your comment. First of all, your comment is really related to Pit 9 and the Radioactive Waste

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Management Complex, and that's not what we're here talking about today, but the Chem Plant.

But the fact is that DOE has a decision that they cannot bury orphan waste, as I mentioned before, or Pit 9 excavation or any other excavation in the Radioactive Waste Management Complex. We do have to treat materials so that it falls into one of two or alternatives. One is below 10 nanocuries per gram. The other one is above 100.

When I mention 100, the 100 for the last time I saw the draft permit on the Waste Isolation Pilot Plant, you are required to have a 95 percent confidence. So when we use the word 100, it's really by measurement depending on which company you're looking at. Banerra, I believe, it's 60 nanocuries per gram to achieve the appropriate confidence level for the 100. Therefore the number then is 10 to 60. But the point is, yes, you do need to do technologies for contaminated soil that is above 10 nanocuries. As you excavate from the ground, you do need to do something whether that is a soil sorter, whether it's some sort of vitrification or some combination of mingling that or mixing that with soils of waste well above 100

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nanocuries per gram in order to achieve material that WIPP will accept. If it's between 10 and 100, it cannot be managed on INEEL, and I don't know any place that we can send it.

MR. SIMPSON: Are there any other questions?

AUDIENCE MEMBER: I suppose you could do like some of us have done. You could add stainless steel and increase the contamination in terms of heavy metal and make it transuranic. I mean, that's been going on for years.

MR. PIERRE: That is not part of the Pit 9 process. A comment in that same direction if you may, it seems that the three of us are doing all of the questioning here, but a comment in the same direction is why not vitrify this material and then grind the stuff into sand and then scatter it?

MR. PIERRE: If you'll notice, I didn't answer the second part of your question. That's the same question.

AUDIENCE MEMBER: You're not going to answer this one either. Okay.

MR. PIERRE: As a member of the Environment Protection Agency for 25 years,

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delusion is not a solution.

MR. SIMPSON: You heard it here, folks. Other questions?

FORMAL COMMENT PERIOD

MR. SIMPSON: Any other questions? Okay. At this time I'd like to encourage people to comment for the record. And we have a court reporter here tonight who will be recording your comments verbatim.

Please, when you make a verbal comment, state your name and spell it and give a mailing address so we can mail you the Record of Decision, and your comment will be responded to in the responsiveness summary section of the Record of Decision.

If you would like to make oral comments, state your name.

AUDIENCE MEMBER: The ones we've already made?

MR. SIMPSON: Mr. Jobe, I think you have to --

MR. JOBE: I'm Lowell Jobe. I will give

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you a copy of this, the comments from Coalition 21 regarding the proposed cleanup. The proposed plan for the clean up for the contaminated soils in the groundwater appears to be well done under the overall conservative assumptions in the regulations by which they have to abide.

Our major concern is with the estimate and the calculations, in that overly conservative values have been used due to using a linear- and no-threshold approach, which has been shown to be incorrect.

Recent scientific values of at least 5 rem -- and there are actually two more recent values of 10 and 20 rem that have been reported instead of the 15 MR would lead to much lower cost figures for accomplishing a cleanup. Therefore, we feel that either these higher figures should be used, or at least as an alternative cost estimate. We expect to comment further before the deadline of December 22 after further study of these documents. That's the main point there.

MR. SIMPSON: Thanks. Anyone else?

AUDIENCE MEMBER: I would like to make a comment on what Mr. Jobe just said and that was that 15 MR. That 15 MR is 15-thousandths of 1

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rem. And you noted that he went up to 10 and even 20 rem. So that 15 MR is less than 1-thousandth of the amount of radiation that some people consider as satisfactory.

My name is George Wood. My address is 1680 North Main Creek Road, Pocatello, Idaho 83204. My telephone number is 233-3421.

MR. SIMPSON: Anyone else? Beatrice, would you?

AUDIENCE MEMBER: My name is Beatrice Brailsford. I'm the program director for the Snake River Alliance. We will have written comments at a later date.

These are concerns that I have already shared with the agencies, not just this evening but before this meeting began, that there seems to be a lack of -- it's not a lack, but we are making decisions, if not in a piecemeal fashion, then at least, certainly, ones that may not total up to a site that we want or at least that might not total up to a site that we already know about.

I think the question that we have repeatedly asked is, "Where will we be when we get there? What is this site going to be like when we're cleaning up?" If it's leaving soil in place

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that you folks are proposing to put in an engineered landfill, and how do those two decisions relate?

It now -- this evening we're told that the assumption is that we're going to entomb in place more than just sealed waste in calciner. Are all these entombing in places covered in the mother EIS, in the site-wide EIS? And the answer is no. I can tell by the nod of your head that the answer is no.

And down the road we are going to have a lot of bits and pieces, and we're going to try to work it in the WAG 10, but in WAG 10 we will have made a lot of our commitments. Here you folks are planning to remove the contamination from your tank system, and the folks who are in charge of the high-level waste tanks are thinking maybe they won't take their tanks out of the ground.

I don't see an overall controlling philosophy for what is going on at the different WAGs. I understand that we're at this historical point, that it may fall into place and it may not. But I guess I do want to read just two sentences from our colleagues at the Institute for Environment and Energy Research.

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"Institutional memory is short and if the past is any guide, people in the future may use contaminated resources for some time and make investments before they discover the contamination. They will then be faced with wrenching decisions of whether to abandon their investments or live with what would normally be unacceptable risk or pursue remediation that, in many cases, may be far more costly than the original remediation and waste management solutions." I want you to focus on the word "wrenching."

AUDIENCE MEMBER: I want to add to my earlier comment, if I may interrupt. The soil at NRF, which I referred to earlier, is not being left in place without treatment. That has been consolidated and capped.

AUDIENCE MEMBER: But it's not going in an engineered landfill.

MR. ROSE: That's correct. It's going into an existing leach pit that is being covered -- an engineered cover. That cover will be adequate containment for that type of contamination. It doesn't have the potential to migrate and the cover will protect anybody from

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external radiation. That is the only path that we're concerned with, so it's a little different in that regard, perhaps.

MR. SIMPSON: Any other comments? Okay. I would just like to remind people that the comment period closes -- or ends December 22nd. And up until that time we will offer briefings for anyone that is interested, and you may mail in any comments. I have postage-paid comment forms here.

They wanted me to remind you that we have basically extended the comment period already in anticipation of public interest that we've had so far. It's been very good public interest.

Also, I would just like to state that the next time we will be holding public clean-up meetings will be in the spring when we will be discussing Waste Area Group 5. Their Remedial Investigation and Feasibility Study in Waste Area Group 5 is the Power Burst Facility and the Auxiliary Reactor, and also Waste Area Group 4, and the Central Facilities Area.

Thank you for the reminder, Ann. I mentioned this earlier, the agencies have released a revised proposed plan for Waste Area Group 1 and that was based on public comment to do such. I

believe the comment period for that starts November 23rd. We don't have copies yet. It will be mailed out tomorrow.

AUDIENCE MEMBER: The comment period ends November 23rd?

MR. SIMPSON: No, it begins November 23rd.

MR. JENKINS: I would just like to thank all you folks for coming out and taking the time out of your evening to come and talk with us and let us know what you think. With that, I'll turn it over.

MR. PIERRE: I second what Talley said. Please remember that there is a postage-paid comment form in the back of the proposed plan. Again, just your thoughts, if not a detailed opinion, whatever you think would be helpful to us in trying to work out these issues and trying to achieve a consolidated master plan on how to manage the Idaho National Engineering Laboratory.

MR. RENO: Ditto. Drive careful.

(Meeting concluded at 9:05 p.m.)



STATE OF IDAHO )
) ss.
County of Ada )

I, NANCY SCHWARTZ, a Notary Public in and for the State of Idaho, do hereby certify:

That said hearing was taken down by me in shorthand at the time and place therein named and thereafter reduced to computer type, and that the foregoing transcript contains a true and correct record of the said hearing, all done to the best of my skill and ability.

I further certify that I have no interest in the event of the action.

WITNESS my hand and seal this 30th day of December, 1998.

Nancy Schwartz, Notary Public in and for the State of Idaho

My commission expires:
September 28, 1999

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